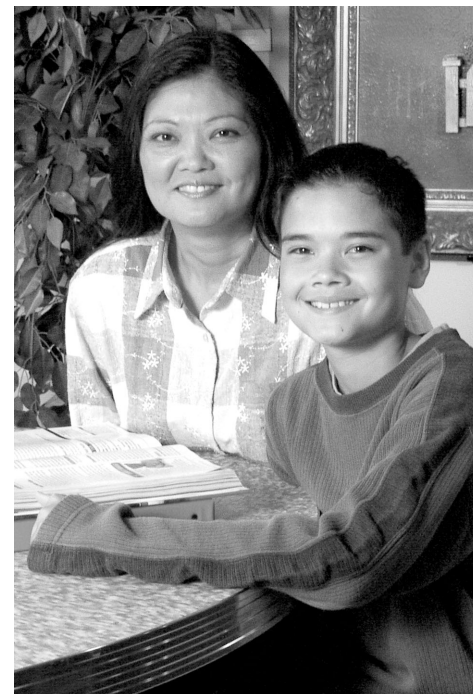


A Standards Guide for Families



25 South Front Street
Columbus, Ohio 43215-4183
1-(877)-OHIOEDU

The Ohio Department of Education does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in employment or the provision of services.

2003ODE060

Total copies printed: 304,776 Unit cost: .082 Publication date: 8/03

www.OhioAcademicStandards.com

Reading
Writing
Mathematics
Science
Social Studies

What is Expected
in Grade

7



Standards now,
knowledge for a lifetime.

Dear Family,

Education in Ohio is changing. This change will help your child succeed in school. It also will better prepare your child for success in college or the work force upon high school graduation.

The basis of this change is new **academic content standards**, which define what your child should know and be able to do at every grade level. There are new standards in English language arts (reading and writing), mathematics, science and social studies.

These new standards let teachers know what they are expected to teach and students know what they are expected to learn. Standards also help educators identify and measure what students know and can do.

Part of this system will include achievement tests to determine how well your child is making progress toward these new standards. These tests will replace the current Ohio Proficiency Tests.

The information in this guide will give you a sample of some of the things your child will need to know and be able to do in reading, writing, mathematics, science and social studies for the seventh grade. The guide also has helpful practice problems, tips and activities you can do with your child to help him or her achieve the new standards.

*It is important to note that the information in this guide is **not** the complete set of standards; rather, this information is designed to highlight a select number of skills that your child should know and be able to do in the seventh grade.* The official standards documents, designed for teachers' use, are in some cases several hundred pages long. This booklet has been reduced to this size for your convenience.

To view the complete set of standards, visit the Ohio Department of Education Web site at www.ohioacademicstandards.com.

I sincerely thank you for the time, interest and energy you are investing in your child's education. I hope this guide is one of many tools you use to help your child reach these new standards and achieve success inside and outside the classroom.

Sincerely,

Susan Tave Zelman
Superintendent of Public Instruction

Language Arts



Acquisition of Vocabulary

What this means: *Being able to recognize clues in reading, ask questions, listen and converse with adults and peers*

- Know the difference between the meanings of connotation (the attitude and/or feelings associated with a word) and denotation (the actual meaning of a word).
- Figure out what a word means by identifying analogies (e.g., tall is to short as hot is to cold), synonyms and antonyms.
- Interpret metaphors and similes to understand new uses of words.

Check your understanding: **Similes and Metaphors**



Similes: Comparing two unlike things using *like* or *as* (e.g., Tom runs as fast as the wind).

Metaphors: Comparing two unlike things using a form of the verb *to be*. (e.g., Carol's life *is* a fairy tale).

- Use words from other languages that have been adopted in the English language. For example, words like pretzel, quartz and kindergarten come from the German language, while other words such as balcony, macaroni and piano come from the Italian language.
- Use knowledge of Greek, Latin and Anglo-Saxon roots and affixes to understand words.



Check your understanding: **Greek, Latin and Anglo-Saxon Roots and Affixes**



Root:	Root meaning:	Examples:
Bi-	Two	Bimonthly, bisect
Magn-	Large	Magnitude, magnify
Ous-	Characterized by	Furious, gracious
Ract-	Pull, draw	Tractor, extract



Reading Process – Concepts of Print, Comprehension Strategies and Self-Monitoring Strategies

What this means: Through reading, students will understand the basic concepts and meanings of different types of print materials.

- Make predictions based on reading material using specific examples from the text.
- Summarize information in reading material using key ideas, supporting details and noting gaps (inconsistencies) in the text.
- Use criteria to choose own reading material (e.g., personal interest, knowledge of authors and recommendations of others).
- Monitor own comprehension when reading by adjusting the speed to fit the purpose, or by skimming, scanning, reading on, looking back, note taking or summarizing what has been read so far.
- Use graphic organizers (e.g., lists, brainstorming, webs, charts, diagrams, outlines) to interpret reading material.



Reading Applications – Informational, Technical and Persuasive Text

What this means: Reading, understanding, explaining and critiquing different kinds of written materials such as magazines, essays, maps and online sites.

- Use chapter titles, headings and subheadings; parts of books

including an index, appendix, table of contents and search engines to locate information.

- Analyze examples of cause and effect and fact and opinion.
- Compare (what is similar) and contrast (what is different) various sources of information such as books, magazines, newspapers and online resources to draw conclusions about a topic.
- Analyze information found in such representations as maps, charts, tables, graphs or diagrams.
- Identify an author's point of view or argument and judge if the details were used accurately.



Reading Applications – Literary Text

What this means: Organizing and interpreting results through collecting data to answer questions and solve problems, show relationships and make predictions about different types of literature (e.g., fables, tales, short stories).

- Explain interactions and conflicts (e.g., character vs. self, nature or society) between major and minor characters and how it affects the plot.
- Compare subjective and objective points of view.

Check your understanding: **Subjective and Objective Points of View**



Subjective point of view: The narrator of the story is involved with other characters in the story. The pronoun "I" is used.

Objective point of view: The narrator of the story is not personally involved in the story. The story uses the pronouns "she/he/they."

- Identify themes, patterns and symbols that occur over and over again and that are found in reading materials from different eras and cultures.

- Explain what defines different kinds of writing such as poetry, drama, myths, biographies, autobiographies, fiction and non-fiction.



Writing Processes

What this means: Using the steps of prewriting, drafting, revising and editing to publish different types of writing.

- Conduct background reading and use interviews or surveys when needed.
- Establish a thesis (theme) statement for writing.
- Determine a purpose and an audience.
- Use organizational strategies such as outlines, diagrams, maps or webs to plan writing.
- Group ideas that are related into paragraphs and maintain a consistent focus across paragraphs.
- Proofread and edit writing to improve grammar, spelling, punctuation and capitalization, and correct fragment and run-on sentences.
- Add or delete information to better explain a main idea.
- Prepare publications for writing that follow a format appropriate to the purpose (e.g., for display or sharing with others). Use techniques such as electronic resources and graphics to enhance the final product (e.g., storyboards, collages, posters, photographs, illustrations, charts, graphs, diagrams).



Writing Applications

What this means: Learning about, using and choosing appropriate words for different kinds of writing, from letters to scientific reports, and for different audiences.

- Write stories that keep a clear focus and point of view and use sensory details (help the reader experience the story) and dialogue (conversation) to develop plot, characters and a specific setting.

- Write responses to novels, stories, poems and plays. Show understanding by using examples and evidence from the reading material.
- Write business letters that state a purpose, make a request or give a compliment and use business letter format.
- Produce informal writings (e.g., journals, notes, poems).



Writing Conventions

What this means: Understanding and applying punctuation, grammar and spelling rules.

- Use commas, end marks, apostrophes, quotation marks, semicolons, colons, hyphens, dashes and brackets correctly.
- Use all eight parts of speech including nouns, pronouns, verbs, adverbs, adjectives, conjunctions, prepositions and interjections.

Check your understanding: **Using the Eight Parts of Speech**



Nouns: Charles and Brian ran to the playground.
Pronouns: Katie ate ice cream. She had chocolate with sprinkles.
Verbs: Ken swam across the pool and climbed out.
Adverbs: The woman spoke quietly.
Adjectives: The tall boy reached up to grab the large book.
Conjunctions: Jamal wanted new shoes and hats for his birthday.
Prepositions: The boy sat beside Kim and in front of Roger.
Interjections: Watch out! There's a fire!

- Use subject-verb agreement with collective nouns (collective nouns name groups composed of members, usually people; e.g., army, public, team), indefinite pronouns, compound subjects and prepositional phrases.
- Use dependent and independent clauses.

Check your understanding: **Dependent and Independent Clauses**



An independent clause is a group of words that contains a subject and verb and expresses a complete thought. An independent clause is a sentence. A dependent clause is a group of words that contains a subject and verb but does not express a complete thought.

Independent Clause: Jim studied in the library for his science quiz.

Dependent Clause: When Jim studied in the library for his science quiz . . .
(What happened when he studied?
The thought is incomplete.)



Research

What this means: *Knowing how to gather information in all subjects using different kinds of tools (e.g., books, computers, magazines) and communicate what is found.*

- Choose a topic to research that is either assigned or is of personal interest, come up with open-ended questions and create a plan for gathering information.
- Locate sources and collect information from several sources, such as school library catalogs, online databases and electronic resources.
- Explain why validity is important in sources including the publication date, coverage, language and points of view.
- Use an appropriate form of documentation with the teacher's help (e.g., bibliography, works cited).
- Use various communications techniques including oral (spoken), visual or written reports to present information that has a clear position and necessary evidence about the topic.



Communication: Oral and Visual

What this means: *Delivering presentations on different topics for different types of audiences.*

- Show active listening strategies (e.g., asking focused questions, responding to cues, making eye contact).
- Understand the speaker's purpose in the presentations and visual media (e.g., to inform, to entertain, to persuade).
- Give informational presentations that:
 - a) Show an understanding of the topic and present events in correct order;
 - b) Support the main idea with well-chosen facts, details, examples, quotations, statistics or stories;
 - c) Include an effective introduction and conclusion and use consistent organizational structure (e.g., cause-effect, compare-contrast, problem-solution);
 - d) Use many sources and identify the sources used.
- Give persuasive presentations that:
 - a) Establish a clear position;
 - b) Include relevant evidence to support the position and to address counter-arguments;
 - c) Use common organizational structures (e.g., compare-contrast, cause-effect).

Tips and Activities

- ✓ Students at this age need at least eight hours of sleep per night. A student who is up late at night will spend more time fighting sleep than learning.
- ✓ Watch a movie version of a book with your child. Afterwards, practice the reading comprehension skill of comparing and contrasting. Discuss the differences and similarities between the two versions.
- ✓ Join together with other parents and start a Reading Club. Parents in the club agree to read a novel with their child and to turn in simple reading tips to their child's teacher each month. Parents will increase their involvement in the education of their children and students will expand their reading interests.
- ✓ Know your child's learning style. People learn differently and students are no exception to this. Parents can use their child's learning styles to supplement lessons.

Mathematics



Numbers, Number Sense and Operations

What this means: Using number sense and number skills, from basic counting to paper and pencil calculations, to age-appropriate use of calculators and computers.

- Show an understanding of place value using powers of 10 and write large numbers in scientific notation.

Check your understanding: **Place Value and Scientific Notation**

Light travels at a speed of about 18,000,000,000 meters per minute. That translates to 1.8×10^{10} meters per minute.

- Describe differences between rational and irrational numbers.

Check your understanding: **Rational and Irrational Numbers**

Rational numbers: Rational numbers are numbers that can be written as fractions or ratios (this tells you where the term rational comes from). Examples of rational numbers include 5 or $\frac{5}{1}$, .75 or $\frac{3}{4}$.

Irrational numbers: Irrational numbers can be represented by decimals that do not end and are not repeating such as .3433433343..... Other irrational numbers include $\sqrt{2}$ or Pi.

- Explain the effect of adding, subtracting, multiplying and dividing integers. For example, adding two integers can result in a lesser value (e.g., $-2 + -2 = -4$).
- Solve problems using the correct form of rational numbers including fractions, decimals and percents.
- Solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).



Measurement

What this means: Making accurate measurements using the appropriate tools, terms and technology.

- Choose the correct units for measuring such measurements as miles per hour or revolutions per minute.
- Develop strategies to find the area of trapezoids and the volume of cylinders.

Check your understanding: **Area of Trapezoids and Volume of Cylinders**

$$\text{Cylinder} = (b)(h) = \pi r^2 h$$

Unroll a cylinder (can) so that it shows two bases (circular) and a lateral surface (rectangle).

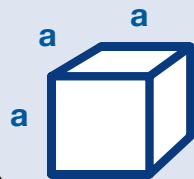
$$\text{Trapezoid} = h/2 (b_1 + b_2)$$

Cut up any trapezoid and rearrange the pieces to make a rectangle and a triangle.

- Understand the difference between surface and volume. Show that two objects may have the same surface area, but different volumes.



Check your understanding: **Surface Area vs. Volume**



The **surface area** is the sum of all the areas of all the shapes that cover the surface of the object. (a is the length of the side of each edge of the cube)

In other words, the surface area of a cube is the area of the six squares that cover it. The area of one of them is $a \times a$, or a^2 . Since these are all the same, you can multiply one of them by 6, so the surface area of a cube is 6 times one of the sides squared.

The **volume** of a figure is the number of cubes required to fill it completely, like blocks in a box. Volume of a cube = side times side times side. Since each side of a square is the same, it can simply be the length of one side cubed.



Geometry and Spatial Sense

What this means: Identifying, classifying and analyzing one-, two- and three-dimensional objects, understanding their properties and using that knowledge to solve problems.

- Determine properties that define a specific two-dimensional or three-dimensional figure. For example, understand that all squares are rectangles.
- Understand the properties of triangles. For example, use the Pythagorean Theorem to solve problems involving right triangles.
- Understand that triangles are congruent if they are the same size and shape - that is, if their corresponding angles and sides are equal.
- Determine and use scale factors for similar figures to solve problems using proportional reasoning.
- Draw three-dimensional geometric objects (e.g., cones, cubes, cylinders) from different views.
- Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).



Patterns, Functions and Algebra

What this means: Representing patterns and relationships using tables, graphs and symbols, and using them to solve problems.

- Describe in words how to find the next term in a pattern.

Check your understanding: **Patterns**

2, 6, 18, 54, __, __

The next number in the pattern is 3 times the previous number.

- Explain when patterns are linear (e.g., 1, 3, 5, 7...) or nonlinear (e.g., 1, 3, 4, 16...).
- Show inequalities on a number line or coordinate plane.
- Show that two forms of an algebraic expression are equal, and know when an expression is simplified. For example, $4m = m + m + m + m$.
- Use graphing calculators or computers to analyze change.
- Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.



Data Analysis and Probability

What this means: Organizing and interpreting results through data collection to answer questions, solve problems, show relationships and make predictions.

- Read and interpret various types of graphs.
- Compare data from two or more samples to determine how sample selection can influence results.

Check your understanding: **Samples**

Discuss how data from a survey about a favorite sport might vary depending on how the data was collected, (e.g., data collected from members of a seventh-grade class compared with data collected from persons at a football stadium).

- Describe the frequency distribution of a set of data as shown in a histogram, frequency table or by general appearance or shape.
- Identify when statistical data is misused in articles, advertisements and other media.
- Compute probabilities (likeliness something will happen) of compound events (e.g., multiple coin tosses or multiple rolls of number cubes).
- Make predictions, test the predications and compare the actual results to the predicted results.



Mathematical Processes

What this means: Applying problem-solving and reasoning skills and communicating mathematical ideas.

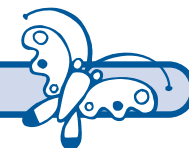
- Represent problem situations using a variety of formats and justify the validity of the solution.
- Communicate mathematical thinking using mathematical language and symbols.



Tips..... and Activities

- ✓ Present a problem to your child such as finding the number of games to be played in a tournament with 60 teams. Have him or her come up with different strategies to solve the problem.
- ✓ Help your child find a simple architectural design and make drawings from different views.
- ✓ Find tables of salaries of possible careers for your child from newspapers, magazines and the Internet and have your child compare the data and draw conclusions.
- ✓ Play a game with your child using a number cube or cubes. Have your child predict who will win the game. Based on the prediction and playing of the game, have your child determine the fairness of the game and how to make the game fair.

Science



Earth and Space Sciences

What this means: Understanding the interconnected cycles and systems of the universe, solar system and Earth.

- Explain how the Earth's ability to absorb and recycle materials naturally such as smoke, smog or sewage can change the quality of the environment depending on the time involved.
- Describe the water cycle and explain how energy is transferred between air and water.
- Examine how the availability of fresh water is essential for life for most industrial and agricultural processes. Describe how rivers, lakes and groundwater can be used up or polluted, therefore becoming unavailable or unsuitable for life.
- Make simple weather predictions based on the changing cloud types associated with frontal systems.
- Read a weather map to interpret local, regional and national weather.
- Determine how temperature and precipitation determine climatic zones (biomes) such as deserts, forests, tundras and grasslands.
- Describe the connection between the water cycle and weather-related phenomenon (e.g., tornadoes, floods, droughts and hurricanes).





Life Sciences

What this means: Understanding the structure and function of living systems and how they interact with the environment.

- Understand how organisms (living things) or populations interact with each other and how some species have become so dependent on each other that neither could survive without the other (e.g., predator-prey).
- Explain how the number of organisms an ecosystem can support depends on adequate biotic (e.g., plants and animals) and abiotic (e.g., light, water, soil) resources.

Check your understanding: **Ecosystems**



An **ecosystem** is a community of organisms and the environment in which they live functioning as one unit.

- Investigate how overpopulation affects an ecosystem.
- Understand that some changes in the environment occur slowly, while others occur rapidly (e.g., decomposition and fires).
- Summarize how natural occurrences and human activity affect the transfer of energy in Earth's ecosystems (e.g., fire, hurricanes, roads and oil spills).
- Explore the great diversity among organisms.



Physical Sciences

What this means: Understanding physical systems, concepts and properties of matter, energy, forces and motion.

- Understand that matter and energy can change forms but the amount of each remains the same.
- Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant and acoustic).
- Trace energy transformation in a simple closed system (e.g., a flashlight).
- Understand that potential energy is related to an object's position and kinetic energy is related to an object's motion.



Science and Technology

What this means: Understanding the relationship between science and technology to design and construct devices to solve problems.

- Explain how needs, attitudes and values influence the development of technology in various cultures.
- Describe how decisions to use technologies many times put environmental and economic concerns in competition with one another (e.g., building a car manufacturing plant in a rural area).
- Understand that science can only answer some questions and technology can only solve some human problems.



Scientific Inquiry

What this means: Using scientific processes to ask questions, conduct investigations, gather, analyze and communicate information.

- Explain that variables and controls can affect the results of an investigation and that ideally only one variable should be tested at a time; however, it is not always possible to control all variables.
- Choose the appropriate tools and use safety procedures to complete scientific investigations.
- Recognize that there may be more than one good way to interpret data.
- Identify faulty statements that misinterpret the evidence.



Scientific Ways of Knowing

What this means: Understanding the relationship between science and technology to design and construct devices to solve problems.

- Show that results can be reproduced over and over again, and that the repetition of an experiment reduces bias in a scientific investigation.

- Describe that science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism and openness).

Tips and Activities

- ✓ You and your child can investigate questions such as "Where does our water come from?" "What is added to make it safe for drinking?" "What is the source of our electricity?" "How is electricity stored?"
- ✓ Discuss with your child the different forms and sources of energy in your home and community. Identify if it is electrical, mechanical, chemical, thermal, nuclear, radiant or acoustic.
- ✓ Have your child name the tools and/or instruments in your home that could be used for a scientific investigation or experiment. Discuss the safety of using tools.
- ✓ Inquire about the local ecosystem. What does your child know about the food chain and how species of birds, fish, insects and mammals fit into it?
- ✓ Visit a local pond, stream, river or lake. What steps does your community or state take to preserve these sources of water?
- ✓ Identify the environmental concerns of economic development in your community, county or state.



Social Studies



Focus: World Studies – Ancient Civilizations Through the First Global Age



History

What this means: Understanding the pattern of events that have happened in the past.

- Describe the impact of early civilizations in India, China, Egypt, Greece and Rome after 1000 B.C. including:
 - a) Development of the concepts of government and citizenship;
 - b) Scientific and cultural advancements;
 - c) Spread of religions;
 - d) Slavery and systems of labor.
- Explain the lasting effects of military conquests during the Middle Ages including:
 - a) Muslim conquests;
 - b) The Crusades;
 - c) The Mongol invasions.
- Describe the impact of new ideas on European life including:
 - a) The significance of printing with movable type;
 - b) Achievements in art, architecture and literature during the Renaissance;
 - c) The Reformation.
- Describe the importance of the West African empires of Ghana, Mali and Songhay including:
 - a) Trade routes;
 - b) Products;
 - c) The spread of the Arabic language;
 - d) The spread of Islam.
- Describe the causes and effects of European exploration after 1400 including:

- a) Imperialism, colonialism and mercantilism;
- b) Impact on the peoples of sub-Saharan Africa, Asia and the Americas.



People in Societies

What this means: Identifying both similarities and differences in the traditions of various groups of people.

- Understand the relationships among cultural practices, products and perspectives of early civilizations.

Check your understanding: **Cultural Practices, Products and Perspectives** ✓

Cultural Practices:	Patterns of behavior accepted by society such as holiday celebrations, etiquette or religious observances.
Cultural Products:	Tangible or intangible things produced by a cultural group such as artworks or languages.
Cultural Perspectives:	The complex set of meaning, attitudes, values and ideas belonging to a cultural group.

In China the ideas of Confucius place an emphasis on respect for elders. This perspective is evident in customs and traditions such as ancestor worship. A product used in relation to this practice is incense.

- Explain how the Silk Road trade and the Crusades affected the cultures of the people involved.
- Describe the cultural and scientific legacies of African, Greek, Roman, Chinese, Arab and European civilizations.



Geography

What this means: Identifying the location of places, understanding how places are connected and how human activity affects them.

- On a map, identify places related to historical events being studied and explain why they are important.

- Use physical and historical maps to study the reasons that human features (e.g., cities, ports, capitals) are located in certain places.
- Describe the geographic factors and processes that cause people, products and ideas to move from place to place, including:
 - a) Physical features;
 - b) Culture;
 - c) War;
 - d) Trade;
 - e) Technology.



Economics

What this means: Understanding how to make decisions in our economic system.

- Compare the donation (endowment) of resources in different parts of the world and explain how this endowment contributed to specialization, trade and interdependence in ancient times.
- Describe the growth of cities and the establishment of trade routes in Asia, Africa and Europe; the products and inventions that traveled along these routes (e.g., spices, textiles, paper, precious metals and new crops); and the role of merchants.



Government

What this means: Understanding why government is necessary and how it works.

- Compare direct and representative democracy using examples of ancient Athens, the Roman Republic and the United States today.

Check your understanding: **Direct and Representative Democracy** ✓

Direct democracy: A government in which the people have political control and participate directly in decision making. In ancient times Athens had a direct democracy.

Representative democracy: A government in which the people have political control and participate through elected representatives. In the United States the citizens elect officials to represent them at the local, state and national levels.

- Describe the key traits of the systems of government found in city-states, kingdoms and empires from ancient times through the Middle Ages. This builds on what students have learned about democracy, monarchy and dictatorships in sixth grade.



Citizenship Rights and Responsibilities

What this means: *Preparing to become active citizens.*

- Explain how the participation of citizens differs under monarchy, direct democracy and representative democracy.
- Describe the rights found in the Magna Carta and show connections to the rights Americans have today.

Check your understanding: **Magna Carta**



The Magna Carta or Great Charter was presented to King John by nobles who were angered by the way that he was using his power. He was forced to sign the document which guaranteed citizens certain legal rights. Among these were protections from arrest without cause and approval of all new taxes by a council of the nobles. The Magna Carta limited the power of the king.



Social Studies Skills and Methods

What this means: *Collecting information, organizing it and using it to make decisions.*

- Describe historical events and issues from the perspectives of people living at the time in order to avoid evaluating the past in terms of today's norms and values.
- Compare multiple viewpoints related to important events in history.
- Establish guidelines, rules and timelines for group work.



Tips and Activities

- ✓ Seventh-graders sometimes need assistance seeing the connections between ancient times and their lives today. Examples surround them every day. Many buildings have columns similar to those in Greek architecture. Others have domes or arches used in ancient Rome. Many words in English come from other languages. Our system of numbers originally came from India.
- ✓ Visit a museum and explore examples of art from early periods in history. Many museums have Web sites that allow you to take a virtual tour. If you don't have access to a computer at home you can use one at a public library.
- ✓ Students need to understand that important parts of our culture in the United States came from many regions of the world and that ideas, customs and products continue to spread from one country to another today. See how many you can think of.
- ✓ Discuss why some early inventions and developments are still in use today while others have been forgotten.
- ✓ Encourage your child to develop his or her vocabulary by using new terms that he or she is learning.
- ✓ Identify countries and regions that are often in the news. Ask your child what he or she has learned about those countries and regions.

Note: Some of the tips and activities in this guide were derived from "parent tips" posted on the Web sites of Georgetown County School District in South Carolina (www.gcsd.k12.sc.us) and Chelsea Publishing House (www.teachervision.com). These resources were used with permission of the authors whom we gratefully acknowledge.

Additionally, the Department would like to thank the Ohio Muskingum Valley Educational Service Center for assisting the Department with this publication.